



The 3 North Directions

- True North

True north is the direction to the north pole and approximately to the polestar. Our topographic maps are also aligned to the pole what means that all meridians point to true north. On Austrian and German topographic maps the collateral map-frames equal those meridians but an exception are the Swiss maps which shows their country's coordinate grid. The German shortcut for true north you might find is GeN (geographic north).

- Magnetic North

You might know this direction from using your compass which do not point to the magnetic poles but show the local course of the steadily changing magnetic lines of force. The magnetic poles as you might guess are also not fixed. They are changing in every point on the earth slightly and change those positions at all times. A constant value is just the amount of declination that stays on all courses, e.g. in seafaring. On topographic maps the value for magnetic north is only correct in the vertical position of the main meridian.

At times surveys are done for new mapping projects the magnetic declination is measured together with the expected changes for the following years. But remember: the could also change differently as it is recorded. Its abbreviation in German is named MaN (magnetic north).

- Grid North

Grid north is the direction expressed by the vertical lines of the orthogonal – even grid. Those lines you can find on the Swiss topographic maps. On German maps for example this is the presentation of the Gauss – Krüger grid or the UTM grid on the international world map. The difference to longitude zone mappings lays in the parallel running grid-lines compared to meridians which tend to proceed into pole direction. Just the grid-line equivalent to the main meridian of each stripe directs to true north.

Some maps positioned at the border of a longitude zone may sometimes show the adjacent grid as well. For your orientation: this is just relevant to you if you go hiking. Then you should orient your compass to the grid you have acquired the gravitation for. In German you will find the abbreviation GiN (grid north) on the maps.

Angles between the 3 north directions

1. Grivation

The angle between grid north and magnetic north is called grivation. It is changing and has a different value at each place.

2. Grid Convergence

This angle describes the angle between true north and grid north. The value is not changing for a position.

3. Declination

This angle lays between True north and magnetic north and is likewise the gravitation changing with different values at each position.